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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

THE AMERICAN CHAMELEON AND ITS CARE

The American chameleon (Anolis carolinensis) is not closely related to the true chameleons (Chamaeleontidae) found in Africa and Madagascar and eastward to India and Ceylon, but derives its name from a trait it shares with the true chameleons, that of changing its body hues. It may be distinguished from all other North American lizards except the geckos by the expanded and flattened adhesive pads on the middle joints of the toes of each foot. The genus Anolis belongs to the family Iguanidae and is generally distributed throughout the southern United States and Mexico south to tropical South America and occurs also in the West Indies. The range of the American chameleon extends from North Carolina to Florida and westward throughout the Gulf region to eastern Texas.

CHANGE OF COLOR

The colors of the chameleon normally are confined to greens and browns with an occasional spotting of black, but vary according to the mood of the individual or in response to the presence or absence of light or to temperature, from slaty gray, straw yellow, and different shades of brown into emerald green; in the darker phases there is usually a mottled pale band on the back. This dorsal stripe may appear as brick red, pink, white, or black. When sleeping and when fighting with its fellows the chameleon invariably is pale green with the abdomen an immaculate white; in moments of excitement the gular pouch is either purplish or a brilliant red. At other times this lizard may be a dark, rich brown, and an individual in this state may fade to pale leaf-green in less than three minutes. During these color changes the varying hues are striking; the brown gives way to a beautiful golden yellow; and this in turn may fade into a slaty gray or emerald green with a general peppering of white; or light turquoise blue dots may appear on the back. The color of the chameleon is not influenced by that of the object upon which it rests. At death this lizard usually is green with scattered patches of black.

According to recent research, the color changes in Anolis depend upon the reciprocal physical action of four layers of skin: The epidermis, the yellow oil droplet layer, the leucophore layer, and the melanophores. The physical characters making possible light interference and absorption and the mixing of transmitted and reflected rays, modified by the migration of pigment to different positions in these layers, result in the varieties of color apparent at the surface of the skin at different times and on differ-

ent localities. The red coloration of the throat-fan is due to a rich capillary plexus and to the presence of a red coloring matter in the deeper layers. The effect of vasodilation is also apparent in the pink stripe noted occasionally along the middorsal line. The oil droplet layer and the leucophore layer in general remain fixed and the various color states depend on the migration of the pigment granules in the fixed processes of the melanophores. Maximal proximal migration of the pigment is associated with yellow, while maximal distal migration produces dark mahogany brown. In the emerald green state the pigment lies in the primary and larger branches of the melanophores. Further distal migration is associated with bluish green or slaty gray color states depending on the degree of migration.

CARE

In summer, chameleons can be turned loose inside a screened house, where they prove useful in capturing and destroying flies, ants, and other insects. A cage suitable for preventing the escape of chameleons is necessary during the winter months. An empty box may be utilized for a cage, preferably one at least two or three feet long. The open face should be covered with either a pane of glass, mosquito netting, or a fine-meshed wire screening. A small, shallow bowl containing a water hyacinth (Eichhornia), the Chinese sacred lily (Narcissus), or some other water plant should be placed inside this box, and a little water sprayed over the leaves of the plant at least once each day, as chameleons normally secure what water they require by lapping up with their thick tongue scattered droplets on leaves. A captive chameleon may soon die of thirst even with a pan of water in the cage. Do not give sweetened water.

FOOD

Chameleons are entirely insectivorous and in captivity may be fed on flies and mealworms. Under ordinary conditions live mealworms will prove to be the most satisfactory diet for captive chameleons, especially since they may be purchased from dealers in such supplies. A supply of cockroaches will prove a valuable source of food to this lizard as these have been found acceptable when other insects are refused. Sowbugs, which are usually found in large numbers around greenhouses, may also be utilized, though they are not especially relished. If chameleons are kept caged during the summer a small piece of decaying fruit should be placed inside the inclosure to attract flies. The blue bottle fly is not a satisfactory food and continued feeding of these flies usually results in the death of the chameleon. A chameleon will soon die on a diet of sugar and water.

LONGEVITY

No definite information is at hand regarding the age reached by chameleons under normal conditions. Under artificial conditions the length of life largely depends upon healthy surroundings and proper care. Many starve or die from thirst in captivity, and their owners should see that these pets are not neglected.

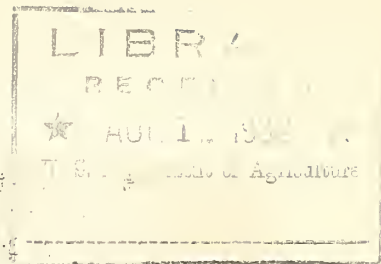
REARING MEALWORMS AND COCKROACHES FOR CHAMELEONS

Dr. C. F. Hodge says: Directions in the bird books for raising mealworms are quite misleading; in order to work intelligently we must learn the life story from egg to egg. The first fact to learn is that the insect is single brooded, that is, it requires an entire season to complete its growth. The beetles may be found laying eggs from May until freezing weather in the fall. The early eggs will produce larvae that are full grown by September or October of the same season; larvae from the late eggs do not attain their growth until about midsummer of the next season. A female beetle lays from twenty to fifty eggs. While practically any farinaceous material--corn meal, ground feed, cracker crumbs, or bread crusts--is suitable for their propagation, feeding experiments have proved that wheat, in some form or other, is preferable and yields the best specimens. Fill a tight box or earthen jar half full of the food material, put in scraps of old leather, cover with woolen cloths, and fit with a lid of wire screen. Put in a few hundred larvae or beetles and leave undisturbed, except to insert a raw potato from time to time. If this is done about April, a good supply of larvae will be obtained for use the following fall, winter, or spring.

Cockroaches are several brooded and require a season to attain maturity. They are usually found around water pipes, under floors which are damp a good part of the time, or around insanitary sinks and drains. The eggs are laid in a bean-shaped pod, which for some time during formation remains attached to the body of the female. Methods of raising cockroaches are very simple and may be carried on with little trouble. When starting a colony it is best to select females bearing egg cases. Place a number of cockroaches in a glass or earthen jar, covered to prevent their escape, and place half an inch or so of moistened paper in the bottom. Put in the jar occasionally some bread soaked in sweetened water, as feeding experiments have shown that this is preferable and inexpensive. Grease in any form and fruit also is eaten. Under favorable conditions there will be a good supply of young cockroaches within a month.

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Chameleons are entirely insectivorous, and in captivity may be fed on flies and mealworms, or on insects caught in a net swept through rank vegetation. Under ordinary conditions live mealworms will prove to be the most satisfactory diet for captive chameleons, especially since they may be bred or purchased from dealers. A supply of cockroaches will prove a valuable source of food to this lizard, as these have been found acceptable when other insects are refused. Sowbugs, which are usually found in large numbers around greenhouses, may also be utilized, though they are not especially relished. If chameleons are kept caged during the summer, a small piece of decaying fruit should be placed inside the inclosure to attract flies. The bluebottle fly is not a satisfactory food, and continued feeding of these flies usually results in the death of the chameleon. A chameleon will soon die on a diet of sugar and water.

EGG LAYING

Chameleons captive in northern States have been known to lay eggs in June, and young have even been hatched from eggs kept in damp sphagnum moss. Practical propagation of the animals in captivity, however, has not yet been achieved.

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